Water Resource Issues of Today & Tomorrow

Since the passage of the federal Clean Water Act in 1972, California has made great strides in cleaning up its rivers, lakes, groundwater aquifers, and coastal waters. The primary focus of that effort, both in California and nationally, has been on wastewater discharged from "point sources" – sewer outfalls and other easily identifiable sources such as pipes. Much of that progress resulted from a regulatory effort that required a permit for each distinct point of discharge, combined with a sizable loan and grant program to help fund the facilities needed to clean up the discharge to permit levels.

Despite this progress, significant challenges remain. For example, the permitting of point sources is becoming more complex and contentious as new state and federal mandates affect standards and enforcement. These and other factors have resulted in a significant need for additional staff resources over the long-term (as reflected in the recent needs analysis of point source efforts).

An even greater challenge is pollution resulting from "nonpoint sources" – runoff from urban areas, agriculture, timber operations, mine drainage and other sources for which there is no single point of discharge. Nonpoint source (NPS) pollution is the most significant California water quality challenge today, and requires flexible and creative responses. Finally, experience also has taught us that it is absolutely essential to recognize that pollution occurs without respect to jurisdictional or organizational boundaries (recall the MTBE issue). Consequently we must continue to create strategies to address cross-media/cross-organizational issues. These and other significant challenges, identified during discussions with internal and external stakeholders, are described briefly below.

DEVELOPING CROSS-MEDIA AND CROSS-ORGANIZATIONAL STRATEGIES It is critical to be proactive, identifying and resolving cross-media and cross-organizational issues. The affect of MTBE on water quality demonstrates the importance of this issue. While this gasoline additive helped in cleaning the state's air, the unforeseen consequences of its groundwater contamination underscores the need to work with other agencies to ensure there are no adverse effects from regulatory or policy actions. As stated in the Cal/EPA *Strategic Vision*, "Pollution occurs without respect to jurisdictional or organizational boundaries. The medium-specific organizational structure of environmental protection in California presents significant challenges to program managers who must ensure that a strategy that solves a problem in one medium does not create a problem in another. It is necessary therefore to create cross-media strategies for addressing environmental problems." This coordination takes a combination of collaboration and creative thinking and will be a high priority for the State and Regional Boards.

IMPLEMENTING THE WATERSHED MANAGEMENT INITIATIVE After years of focusing on single point source pollution control we are now looking at the bigger picture when developing methods of dealing with water pollution. By looking at entire watersheds rather than only focusing on specific pollutants or polluters, unique

Sediment monitoring in Rhine Channel, Newport Bay. Region 9 staff and Joanne Schneider Region 8.

solutions for each watershed can be crafted that consider all local conditions and pollution sources. These solutions rely on the input and involvement of local stakeholders. The State and Regional Boards approved the Watershed Management Initiative (WMI) as part of the 1995 Strategic Plan. The WMI was developed to help us meet our goal of providing water resource protection, enhancement, and restoration while balancing economic and environmental impacts. The WMI provides an overarching framework that overlies the numerous separate and competing program priorities established by federal and state mandates. One of the challenges for the immediate future will be to identify and resolve, where possible, internal operating constraints in order to integrate these separate programs into a more holistic watershed approach.

Implementation of WMI requires a new set of staff capabilities (e.g., planning, facilitation, education) to help coordinate watershed-based efforts and stakeholder groups involved in the efforts. The Regional Boards have identified 44 watershed management areas in California as priority targets for immediate attention and funding. There are approximately 100 additional watersheds that will be addressed in the future. Better coordination of the many overlapping state, local, and federal activities – especially those involving regulations and funding – is critical to the success of local watershed efforts.

CONTROLLING NONPOINT SOURCE (NPS) POLLUTION

Polluted runoff, or NPS pollution, is the leading cause of water quality problems in the state. Nonpoint sources arise from multiple land uses such as runoff from agriculture and timber harvesting areas, mine drainage, subdivisions, and range and dairy cattle areas. Rainfall, snowmelt, or irrigation water that moves over and through the ground are also contributors to NPS pollution. As the runoff moves, it picks up and carries away natural, animal and human-made pollutants, depositing them into lakes, rivers, wetlands, groundwater, and other inland and coastal waters. These discharges threaten the quality of the state's waters.

The challenge of NPS pollution lies in its very nature: diffuse, sporadic and difficult to trace to its sources, and thus more difficult to regulate through a permitting process. Because treatment to remove NPS pollutants is an expensive and potentially endless task, it is essential to keep these pollutants from reaching the water. Effective water quality protection requires a comprehensive approach to managing nonpoint sources. Prevention needs to be emphasized, and we need to consider the cumulative effects of NPS pollution on entire watersheds.

More than 20 state agencies, in addition to the State and Regional Boards, have authorities, programs, or responsibilities relating to the control of NPS pollution. Coordinating and focusing such a large number of entities to produce an effective NPS program in a state as large and geomorphologically diverse as California poses unique and difficult challenges. California will need to rely on a wide range of tools, activities, and authorities to address NPS pollution statewide. The Watershed Management Initiative and Total Maximum Daily Loads (TMDLs) are two of the tools we are using to address NPS pollution.

DEVELOPING TOTAL MAXIMUM DAILY LOADS (TMDLs)

Federal law requires states to identify all water bodies that do not meet water quality standards. For those "impaired" water bodies failing to meet standards, the states must establish total maximum daily loads, or TMDLs. TMDLs define how much of a specific pollutant a water body can tolerate and still meet relevant water quality standards. All of the combined pollution sources in a watershed may not discharge more than the total limit. The establishment of TMDLs in California is one of the most significant and controversial efforts undertaken by the State and Regional Boards. Not only do the TMDLs have to be established, but they must also be implemented by allocating responsibility for corrective measures among a variety of dischargers. Approximately 1,500 water body-pollutant combinations requiring TMDL development have been identified.

The Regional Boards are committed to the development of 500 to 800 individual TMDLs, over the next ten years, which will account for all 1,500 of these water body-pollutant combinations. In the short-term, we will continue to work with stakeholders to develop guidance for this new and complex program. In the long-term, additional resources will be required to accurately monitor and assess water bodies, work with stakeholders to develop and implement TMDLs, and subsequently determine the success of the TMDLs in restoring the state's water to relevant standards.

REDUCING STORM WATER POLLUTION

The recent repeated closures of beaches in Southern California due to excessive bacteria levels in coastal waters has highlighted the significance of contaminated storm water in California. During a storm, or other events where water flows across large expanses of pavement, that water may pick up pollutants along the way. Water that flows down driveways and streets and into a gutter eventually makes its way into a storm drain, and then flows directly to a lake, river or the ocean. Common

pollutants that are picked up along the way include motor oil, pesticides, brake dust, pet wastes, paint, and household chemicals.

These pollutants can have harmful effects on drinking water supplies, recreational use, and wildlife. The federal Clean Water Act requires that various industrial facilities, construction sites, and urban areas with more than 100,000 people, control the amount of pollutants entering their storm drain systems. This requirement will soon be expanded to include smaller communities as well. Storm water pollution is an issue that touches almost every Californian who is both part of the problem and part of the solution. Our challenge is two-fold: to educate the general public; and to work together with all parties to ensure compliance with pollutant discharge laws.

ADDRESSING GROUNDWATER POLLUTION

Groundwater basins supply nearly 40 percent of the water Californians use. Until the late 1970s, groundwater was considered relatively safe from pollution because it was commonly believed that the overlying soil mantel functioned to filter out pollutants. However, monitoring conducted during the late 70's and 80's demonstrated that diverse solvents, gasoline products, and agricultural products were contaminating drinking water sources. Leaking underground storage tanks, coupled with the introduction of the gasoline additive MTBE, have caused significant groundwater contamination. In the state's $28 billion agricultural industry, fertilizers and pesticide use have created elevated nitrate and pesticide levels in groundwater. The overpumping of aquifers in coastal areas has created problems with seawater intruding inland and contaminating groundwater. With the discovery of various pollutants in groundwater aquifers, many drinking water wells have been shut down due to unacceptable concentrations of contaminants. Once a groundwater supply is polluted, it is difficult and expensive to clean up.

PERMITTING POINT SOURCE DISCHARGERS

Although much has been accomplished in reducing point source pollution, challenges remain. For years we have struggled to develop and renew appropriate permit requirements for facilities in the existing regulatory programs. Addressing backlogs in permit re-issuance has been a priority of the USEPA and the Legislature, and has affected our ability to perform other compliance assurance and enforcement functions. New state and federal mandates that dramatically increase the complexity of permits, and that exponentially increase the number of facilities subject to permit requirements are already affecting our functions. For example, implementation of USEPA's California Toxics Rule and TMDLs involve complicated technical, policy and legal issues that make permits more complex, more costly to adopt, and more susceptible to legal challenges.

INCREASING COMPLIANCE ASSURANCE AND ENFORCEMENT

In order to comply with state and federal water quality laws, we review discharger monitoring reports, conduct facility inspections, and respond to complaints. Historically, a lack of resources for these activities has impaired our ability to identify and track compliance and

to take appropriate enforcement actions for non-compliance. Recent evaluations indicate that while enforcement actions have increased significantly, compliance rates need to improve.

The 1999 Compliance Assurance and Enforcement Initiative established the goal of achieving measurable and continuing increases in compliance rates and identified a wide variety of challenges and proposed solutions. Improved data management is the cornerstone for improved compliance assurance and enforcement. Regulators, policy makers, and the public need better access to violation and enforcement information. We must develop tools to improve the consistency and cost-effectiveness of compliance determinations (such as report reviews and inspections) and action plans. Finally, "Compliance Report Cards" should be prepared by the State and Regional Boards, and presented to the public.

WATER QUALITY MONITORING AND ASSESSMENT

Adequate and accurate monitoring and assessment is the cornerstone to preserving, enhancing, and restoring water quality. The information gathered from these monitoring activities is critical for: determining the effects of point and nonpoint source pollution; protection of drinking water supplies; conducting federal Clean Water Act assessments; determining trends in water and habitat quality; and developing water quality standards and then determining if they are being met. A number of recent legislative actions have identified the need for improved water quality monitoring in California. The 1999-00 Budget Act required us to provide a plan for comprehensive surface water and groundwater monitoring. In November 2000, in response to Assembly Bill (AB) 982 (1999 legislative session), the State Board submitted to the Legislature a comprehensive plan for the Surface Water Ambient Monitoring Program (SWAMP) and Groundwater Ambient Monitoring and Assessment (GAMA). The State and Regional Boards are now implementing these programs to the extent funding is available.

ADDRESSING THESE WATER RESOURCE ISSUES

In order to effectively address these issues, we have updated our organization's mission, vision, and values. These strategic plan elements detail our purpose, where we want to go, and our guiding philosophy. We have also developed a set of operating principles and identified new goals, objectives, strategies and key strategic projects. These elements describe how we intend to achieve our vision, and how we will measure our progress along the way. The following sections of the Strategic Plan contain these critical components. (See Appendix A for strategic planning definitions.)